

SEQUENCE LISTING

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Skiadopoulos, Mario H.
Tao, Tao

<120> USE OF RECOMBINANT PARAINFLUENZA VIRUSES (PIVs) AS VECTORS TO PROTECT AGAINST INFECTION AND DISEASE CAUSED BY PIV AND OTHER HUMAN PATHOGENS

<130> 15280-404100US

<140>
<141>

<150> 60/170,195

<151> 1999-12-10

<160> 62

<170> PatentIn Ver. 2.1

<210> 1

<211> 41

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Flanking sequence of Measles HA gene insert for N-P and P-M junctions

<400> 1

cttaagaata tacaaataag aaaaacttag gattaaagag cg

42

<210> 2

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Flanking sequence of Measles HA gene insert for N-P and P-M junctions

<400> 2
gatccaaacaa agaaaacgaca ccgaaacaaac cttaag 36

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<210> 3
<211> 101
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Flanking
      sequence of Measles HA gene insert for HN-L
      junction

<400> 3
aggcctaaaa gggaaatata aaaaacttag gagtaaagg acgcaatcca actctactca 60
tataattgag gaaggaccca atagacaaat ccaaattcga g 101
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<210> 4
<211> 79
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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Flanking
sequence of Measles HA gene insert for HN-L
junction.

<400> 4
tcataattaa ccataatagt catcaatcta tctataatac aagtatatga taagtaatca 60
gcaatcagac aataggcc 79

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<210> 5
<211> 64
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Cloning site
      for GU insertion

<400> 5
aggaaaaggg aaatataaaa aacttaggag taaagttacg cgtgttaact tcgaagagct 60
ccct 64
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<210> 6
<211> 38
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Cloning site
 for NCP insertion

<400> 6
aqqaaaaqqq aacqcqqtqtt aacttcqaaq aqctccct 38

<210> 7
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Cloning site
for supernumerary gene insert between the P and M
genes of rHPIV3

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<400> 7
ttaacaatat acaaataaga aaaacttagg attaaagagc catggcgtac gaagcttacg 60
cgt                                              63
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<210> 8
<211> 12
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PIV3 gene end
(GE) sequence

<400> 8
aagtaagaaaa aa 12

<210> 9
<211> 58
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Cloning site
for RSV G and F gene inserts in B/H PIV3

<400> 9
aggattaaag aactttaccg aaaggtaagg gcaaagaaat cctaagagct tagcgatg 58

<210> 10
<211> 11
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Flanking
sequence for RSV G gene insert in B/H PIV3

<400> 10
gcttagcgat g 11

<210> 11
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Flanking
sequence of RSV G and F gene inserts in B/H PIV3

<400> 11
aagctagcgc tttagc 15

<210> 12
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Flanking
sequence for RSV F gene insert in B/H PIV3

<400> 12
gcttagaaaa aagctagcac aatg 24

<210> 13
<211> 83

<223> Description of Artificial Sequence:
Reverse/Forward primer for PCR of measles HA gene
insert for HN-L junction

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<400> 16
gtagaacgcg tttatccggc ctcgttgtgg tgacatctcg aatttggatt tgtctattgg 60
gtccttcc                                         68
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<210> 17
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Reverse primer
for PCR of measles HA gene insert for HN-L
junction

<400> 17
ccatqtaatt qaatccccca acactaqc 28

<210> 18
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:
 Forward/Reverse primer for PCR of measles HA gene
 insert for HN-L junction

<400> 18
cqqaataaaacq cgttctacaa agataacc 28

<210> 19
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Upstream HPIV2
HN primer

<400> 19
gggccccatggg agattacacgg aat 23

<210> 20
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Downstream HPIV2 HN primer

<400> 20
caataagctt aaagcattag ttccc 25

<210> 21
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Upstream HPIV2 HN primer

<400> 21
gcgatgggcc cgaggaagga cccaatagac a 31

<210> 22
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Downstream HPIV2 HN primer

<400> 22
cccggttcct gatttcccgaa gcacgctttg 30

<210> 23
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: HPIV1 HN

primer

<400> 23
agtggctaat tgcattgcat ccacat

26

<210> 24
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: HPIV1 HN
primer

<400> 24
gccgtctgca tggtaatag caat

24

<210> 25
<211> 13
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Oligomer
insert for rule-of-six conformity

<400> 25
cgccggcaggc ctg

13

<210> 26
<211> 14
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Oligomer
insert for rule-of-six conformity

<400> 26
cgccggcaggc cctg

14

<210> 27
<211> 15
<212> DNA

0030212460
0030212460
<210> 31

<211> 92

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Reverse primer
for RSV A G gene insert

<400> 31

aaaaagctaa gcgcctagcct ttaatcctaa gtttttctta cttttttac tactggcgtg 60
gtgtgttggg tggagatgaa ggttgtatg gg 92

<210> 32

<211> 65

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Forward primer
for RSV A F gene insert

<400> 32

aaaggcctgc ttagcaaaaa gctagcacaa tggagttgct aatcctcaaa gcaaattgcaa 60
ttacc 65

<210> 33

<211> 89

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Reverse primer
for RSV A G gene insert

<400> 33

aaaagctaaag cgcttagcttc tttaatccta agttttctt acttttatta gttactaaat 60
gcaatattat ttataccact cagttgatc 89

<210> 34

<211> 44

<212> DNA

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Mutagenic
forward primer for modification of rHPIV3-1 cDNA

<400> 34
cgcccgtgac gcgtctccgc accggtgtat taagccgaag caaa 44

<210> 35
<211> 59
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Mutagenic
reverse primer for modification of rHPIV3-1 cDNA

<400> 35
cccgagcacg ctttgctcct aagttttta tattcccgta cgtctattgtctgattgc 59

<210> 36
<211> 95
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Forward primer
for insertion of HPIV2 F ORF into rB/HPIV3 genome

<400> 36
aaaatatagc ggccgcaagt aagaaaaact taggattaaa ggcggatgga tcacctgcat 60
ccaatgatag tatgcatttt tgttatgtac actgg 95

<210> 37
<211> 72
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Reverse primer
for insertion of HPIV2 F ORF into rB/HPIV3 genome

<400> 37
aaaatatagc ggccgcttt actaagatat cccatatatg tttccatgat tgttcttggaa 60
aaagacggca gg 72

<210> 38
<211> 81
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Forward primer
for insertion of HPIV2 HN ORF into rB/HPIV3 genome

<400> 38
ggaaaaggcgc gccaaagtaa gaaaaactta ggattaaagg cgatggaaag attacagcaa 60
tctatctttt aaatcaattc c 81

<210> 39
<211> 54
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Reverse primer
for insertion of HPIV2 HN ORF into rB/HPIV3 genome

<400> 39
ggaaaaggcgc gccaaaattt aagcattttt tcccttaaaa atggtatttt ttgg 54

<210> 40
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer for
construction of PIV3-2 chimeric cDNAs, PIV2 F
(sense)

<400> 40
gtaccatggc tcacctgcat ccaat 25

<210> 41
<211> 31
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer for construction of PIV3-2 chimeric cDNAs, PIV2 F (antisense)

<400> 41
tqtggatcct aagatatccc atatatqttt c

31

<210> 42
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer for
construction of PIV3-2 chimeric cDNAs, PIV2 F
(sense)

<400> 42
atqcatcacc tqcatccaat

20

<210> 43
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer for
construction of PIV3-2 chimeric cDNAs, PIV2
(antisense)

<400> 43
taqtqaataa aqtqtcttqq ct

22

<210> 44
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer for
construction of PIV3-2 chimeric cDNAs, PIV2 HN
(sense)

<400> 44
catgagataa ttcatcttga tgtt

24

<210> 45
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer for
construction of PIV3-2 chimeric cDNAs, PIV2 HN
(antisense)

<400> 45
agcttaaaagc attaagtccccc ttaa

24

<210> 46
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer for
construction of PIV3-2 chimeric cDNAs, PIV3 F
(sense)

<400> 46
atcataatta ttttgataat gatcatta

28

<210> 47
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer for
construction of PIV3-2 chimeric cDNAs, PIV3 F
(antisense)

<400> 47
gttcagtgct tgttgtgtt

19

<210> 48
<211> 27
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer for construction of PIV3-2 chimeric cDNAs, PIV3 HN (sense/antisense)

<400> 48

tcataattaa ccataatatq catcaat

27

<210> 49

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer for construction of PIV3-2 chimeric cDNAs, PIV3 HN (sense)

<400> 49

qatqgaatta attagcacta tgat

24

<210> 50

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer for construction of PIV3-2 chimeric cDNAs, PIV2 F (antisense)

<400> 50

atgcatcacc tgcatccaa

20

<210> 51

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer for construction of PIV3-2 chimeric cDNAs, PIV2 F (sense)

<400> 51
gatgatgttag gcaatcagc

19

<210> 52
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer for
construction of PIV3-2 chimeric cDNAs, PIV2 HN
(sense)

<400> 52
actgccacaa ttcttqgc

18

<210> 53
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer for
construction of PIV3-2 chimeric cDNAs, PIV2 HN
(antisense)

<400> 53
ttaaagcatt aqttccctta aaaatg

26

<210> 54
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer for
- construction of PIV3-2 chimeric cDNAs, PIV3 F
(sense)

<400> 54
aagtattaca qaattcaaaa qaq

23

<210> 55
<211> 20

(sense)

<400> 58
gatactatcc taatattatt gc

22

<210> 59
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer for
construction of PIV3-2 chimeric cDNAs, PIV3 L
(antisense)

<400> 59
gctaattttg atagcacatt

20

<210> 60
<211> 15492
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Sequence of
pFLC.PIV32, 15492 bp in sense orientation

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accaaacaag agaagaaaact tgtctggaa tataaattta actttaaattt aacttaggat 60
taaagacatt gactagaagg tcaagaaaag ggaactctat aatttcaaaa atgttgagcc 120
tatttgatac attaatgca cgtaggcaag aaaacataac aaaatcagcc ggtggagcta 180
tcattccctgg acagaaaaat actgtctcta tattcgccct tggaccgaca ataactgatg 240
ataatgagaa aatgacatta gctcttctat ttctatctca ttcaactagat aatgagaaaac 300
aacatgcaca aaggccaggg ttcttggtgt ctttattgtc aatggcttat gccaatccag 360
agctctacct aacaacaaat ggaagtaatg cagatgtcaa gtatgtcata tacatgattg 420
agaaaagatct aaaacggcaa aagtatggag gatttgggt taagacgaga gagatgat 480
ataaaaagac aactgattgg atatttggaa gtgacctgga ttatgatcag gaaactatgt 540
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<213> Artificial Sequence

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<223> Description of Artificial Sequence: Sequence of
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